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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,218	04/14/2005	Masanobu Seki	CU-4148 RJS	6993
26530	7590	09/18/2007	EXAMINER	
LADAS & PARRY LLP 224 SOUTH MICHIGAN AVENUE SUITE 1600 CHICAGO, IL 60604			MAKI, STEVEN D	
			ART UNIT	PAPER NUMBER
			1733	
			MAIL DATE	DELIVERY MODE
			09/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,218	SEKI ET AL.	
	Examiner	Art Unit	
	Steven D. Maki	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>082206.041405</u> . | 6) <input type="checkbox"/> Other: ____. |

Art Unit: 1733

1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (specification page 1 lines 19-33, page 2 lines 1-12) in view of Sucech (US 5,643,510) and optionally further in view of Soviet Union (SU 1252321), Japan (JP 10-330174) or Great Britain (GB 2032413).**

The admitted prior art discloses a process for manufacturing a foamed gypsum board comprising:

blowing air into a foaming agent to form a "**preliminarily produced foam**";

obtaining a foamed gypsum slurry by mixing the "preliminarily produced foam" into a kneaded material containing calcined gypsum, adhesive, additives and water;

pouring the foamed gypsum slurry into a space between upper and lower base papers;

passing the gypsum slurry covered with base papers through a shaping machine for determining the thickness and width of a gypsum board;

roughly cutting off the shaped strip-type gypsum board;

drying the rough cut gypsum board by passing it through a force drying machine;

cutting the dried gypsum board to a predetermined dimension.

The admitted prior art does not recite forming the preliminarily produced foam using a foaming agent and a pore size adjusting agent.

As to claims 1 and 2, it would have been obvious to one of ordinary skill in the art to obtain a **"foaming agent for producing foams of desired sizes"** ("**pregenerated foam**") by preliminarily adding a "pore size adjusting agent" to a stock solution of foaming agent so that when such a "foaming agent for producing foams of desired sizes" is used in the admitted prior art process to form "preliminary produced foam" ("**pregenerated foam**"), the manufactured gypsum board (plaster board) has pores with predetermined size distributed in a gypsum core in view of:

Sucech's suggestion to control void size (and thereby improve nail pull and strength) in a foamed gypsum board by forming a **"pregenerated foam"** from a mixture of a first stable foaming agent such as alkyl ether sulfate *and* a second stable foaming agent such as alkyl sulfate *before* adding the foam to the gypsum slurry to form a foamed gypsum slurry to be placed between upper and lower base papers

and optionally further in view of:

Soviet Union's suggestion to improve stability of foam and improve strength of lightweight concrete or plaster board by using a **"mixture for pore formation"** ("**pregenerated foam**") obtained by mixing ferric sulfate *and* alkyl-aromatic sulphonate(s),

Japan's suggestion to obtain lightweight plaster board having adhesive property to paper and improved strength by using a "foam adjusting agent" for controlling

size of air cells in gypsum slurry such as fatty acid derivative, ferric sulfate, aluminum sulfate, etc. and a frothing agent such as alkyl ether sulfate, or
Great Britain's suggestion to form a **"prefoam"** ("**pregenerated foam**") for lightweight foamed cement by mixing sulphosuccinate and alkyl sulfate or alkyl ether sulfate.

Hence, the admitted prior art substantially discloses the claimed invention (including the rough cutting step) except for the use of two agents to form the pregenerated foam. Sucech motivates one of ordinary skill in the art to use two agents to form pregenerated foam to obtain the benefit of controlling void size (and thereby improve nail pull and strength) in a foamed gypsum board. The claimed "stock solution of the foaming agent" reads on one agent of Sucech and the claimed "pore size adjusting agent" reads on the other agent of Sucech since the combination of these agents function to create voids of desired size. For example, the claimed "stock solution of foaming agent" reads on Sucech's first stable foaming agent such as alkyl ether sulfate (major portion with $y \geq 1$). It is noted that alkyl ether sulfate is used as the foaming agent in applicant's example. The claimed "pore size adjusting agent" reads on the second foaming agent such as alkyl sulfate since Sucech explains that increasing the amount of alkyl sulfate ($y = 0$) increases the size of the bubbles. The combination of the admitted prior art and Sucech is considered to constitute a prima facie case of obviousness. In any event, it is clear that the admitted prior art and Susech teach a "stock solution of foaming agent". The optional secondary art to Soviet Union, Japan or Great Britain suggest using a compound falling within the scope of "pore size adjusting agent" in combination with a

Art Unit: 1733

"foaming agent". The claimed "pore size adjusting agent" reads on ferric sulfate as disclosed by Soviet Union, the foam adjusting agent (e.g. ferric sulfate or aluminum sulfate) suggested by Japan or sulphosuccinate as suggested by Great Britain.

As to claim 3 (water-soluble acidic substances, strong acids) and claim 4 (aluminum sulfate, ferric sulfate), note Soviet Union's teaching to use ferric sulfate or Japan's teaching to use foam adjusting agent such as ferric sulfate or aluminum sulfate. It is emphasized that Sucech and Japan disclose using alkyl ether sulfate as a foaming agent and that Japan teaches using foam adjusting agent such as ferric sulfate or aluminum sulfate in combination with alkyl ether sulfate.

As to claim 5 (sulphosuccinate-type surface active agents), note Great Britain's suggestion to use sulphosuccinate. It is emphasized that Sucech and Great Britain disclose using alkyl ether sulfate as foaming agent and that Great Britain suggests using sulphosuccinate in combination with alkyl ether sulfate.

As to claim 6, the claimed amount of 0.00001 to 0.005 parts by weight pore adjusting agent would have been obvious in view of the amount of "pore adjusting sizing agent" suggested by Sucech, Soviet Union, Japan or Great Britain. With respect to Sucech, Soviet Union and Great Britain, it is taken as well known / conventional per se in the gypsum board art to use a small amount such as 0.01 - 0.03 parts by weight of foaming agent comprising alkyl ether sulfate per 100 parts gypsum. With respect to Japan, it is noted that Japan teaches using a quantity of 0.001 to 0.01 parts by weight per 100 parts by weight calcined gypsum.

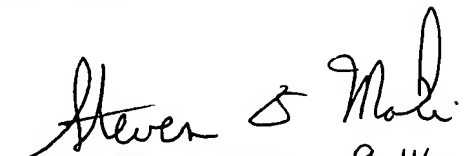
Remarks

- 3) The remaining references are of interest.
- 4) No claim is allowed.
- 5) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven D. Maki
September 14, 2007


STEVEN D. MAKI
PRIMARY EXAMINER
9-14-07